

## STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

**TDEC-DWS** 200 East Race St

Knoxville, TN 37763

N00004019 Lab ID:

Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

**Billing Code:** 

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004019001

**Project Name:** 

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

**Station No.:** 

Date/Time Collected:

01/18/2009 08:00

Sampler's Name: County:

BRANDY LONG

Sample Matrix:

ROANE - 73

Sample i

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code:

Send Report To: Agency Invoiced: TDEC-DWS TDEC-DWS

**Priority Date:** 

Date/Time Received:

01/18/2009

10:30

Received By:

P Singh

TEST: Alkalinity, Total	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	53	mg/L	3.8	10	S Burchfield	1/18/2009

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen:** 

**CFS** 

Conductivity:

Temperature:

pH:

Other:

Flow:

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	44	mg/L	0.7	1	M Chen	1/18/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

N00004019002

**Project Name:** 

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

**Project Site No.:** 

**Station No.:** 

**Date/Time Collected:** 

01/18/2009 08:05

Sampler's Name:

**BRANDY LONG** 

County: Sample Matrix: **ROANE - 73** 

EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

**Billing Code:** 

**Send Report To:** 

**Agency Invoiced:** 

TDEC-DWS TDEC-DWS

**Priority Date:** 

Date/Time Received:

01/18/2009

10:30

Received By:

P Singh

TEST: Alkalinity, Total	ME:	THOD: EPA 31				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	56	mg/L	3.8	10	S Burchfield	1/18/2009

**Field Determinations** 

Chlorine, residual:

Dissolved Oxygen:

**CFS** 

Conductivity:

Temperature:

:Hq

Other:

Flow:

TEST: Hardness, Calcium	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	44	mg/L	0.7	1	M Chen	1/18/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

N00004019003

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name: FINISH

**Project Site No.:** 

**Station No.:** 

**Date/Time Collected:** 

01/18/2009 08:30

Sampler's Name:

**BRANDY LONG** 

County: Sample Matrix: **ROANE - 73** 

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-DWS

Send Report To:

TDEC-DWS

Agency Invoiced:

**TDEC-DWS** 

**Priority Date:** 

Date/Time Received:

01/18/2009

10:30

Received By:

P Singh

TEST: Alkalinity, Total	MET	THOD: EPA 31				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	72	mg/L	3.8	10	S Burchfield	1/18/2009

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen:** 

CFS

Conductivity:

Temperature:

pH:

Other:

Flow:

TEST: Hardness, Calcium	ME.		***************************************			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	51	mg/L	0.7	1	M Chen	1/18/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

N00004019004

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name: RAW

**Project Site No.:** 

**Station No.:** 

**Date/Time Collected:** 

01/18/2009 08:35

Sampler's Name:

**BRANDY LONG** 

County:

**ROANE - 73** 

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

**Billing Code:** 

Send Report To: Agency Invoiced: **TDEC-DWS** TDEC-DWS

**Priority Date:** 

Date/Time Received:

01/18/2009

10:30

Received By:

P Singh

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	80	mg/L	3.8	10	S Burchfield	1/18/2009

**Field Determinations** 

**CFS** 

Chlorine, residual:

Conductivity:

Temperature: **Dissolved Oxygen:** 

pH:

Other:

Flow:

TEST: Hardness, Calcium	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	50	mg/L	0.7	1	M Chen	1/18/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 



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TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763 Lab ID: N00004019

Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

r: N00004019001

**Project Name:** 

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

**Project Site No.:** 

Station No.:

Date/Time Collected:

01/18/2009 08:00

Sampler's Name:

BRANDY LONG

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

**Billing Code:** 

Send Report To:

TDEC-DWS

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

01/18/2009 1

10:30

Received By:

P Singh

TEST: Digestion Metals	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	01/19/2009				A Wilson	1/19/2009

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen:** 

**CFS** 

Conductivity:

Temperature:

:Hq

Other:

Flow:

TEST: ICP-MS	ME <sup>-</sup>	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/19/2009
Barium	21	μg/L	2.5	5	M Pattanayek	1/19/2009
Beryllium	· U	μg/L	0.11	1	M Pattanayek	1/19/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/19/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/19/2009
Cobalt	0.04J	μg/L	0.04	1	M Pattanayek	1/19/2009
Lead	U	μg/L	0.10	1	M Pattanayek	1/19/2009
Manganese	1.6	μg/L	0.42	1	M Pattanayek	1/19/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/19/2009
Thallium	0.23J	μg/L	0.03	1	M Pattanayek	1/19/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/19/2009

TEST: Mercury	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	1/19/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit
MQL - Method Quantitation Limit

**Project Name:** 

N00004019002

Sample Description: KINGSTON WTP

Sampler Project Name: RAW

**Project Site No.:** 

**Station No.:** 

**Date/Time Collected:** Sampler's Name:

01/18/2009 08:05 **BRANDY LONG** 

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville **TDEC-DWS** 

**Billing Code:** 

Send Report To: Agency Invoiced: TDEC-DWS **TDEC-DWS** 

**Priority Date:** 

Date/Time Received:

01/18/2009

10:30

Received By:

P Singh

TEST: Digestion Metals  ANALYTE	METHOD: EPA 200.2					
	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	01/19/2009				A Wilson	1/19/2009

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen:** 

**CFS** 

Conductivity:

Temperature:

:Hq

Other:

Flow:

TEST: ICP-MS	MET	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/19/2009
Barium	24	μg/L	2.5	5	M Pattanayek	1/19/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/19/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/19/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/19/2009
Cobalt	0.15J	μg/L	0.04	1	M Pattanayek	1/19/2009
Lead	0.27J	μg/L	0.10	1	M Pattanayek	1/19/2009
Manganese	33	μg/L	0.42	1	M Pattanayek	1/19/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/19/2009
Thallium	0.07J	μg/L	0.03	1	M Pattanavek	1/19/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/19/2009

TEST: Mercury	ME	ΓHOD: EPA 24		<del></del>		
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	1/19/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

**Project Name:** 

N00004019003

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name: FINISH

**Project Site No.:** 

**Station No.:** 

**Date/Time Collected:** 01/18/2009 08:30 Sampler's Name: **BRANDY LONG** County:

**Sample Matrix:** 

**ROANE - 73** 

EFO:

Water Knoxville **TDEC-DWS** 

Sampling Agency: **Billing Code:** 

Send Report To: Agency Invoiced: TDEC-DWS TDEC-DWS

**Priority Date:** 

Date/Time Received:

01/18/2009 10:30

Received By:

P Singh

**Field Determinations** 

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	01/19/2009				A Wilson	1/19/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/19/2009
Barium	26	μg/L	2.5	5	M Pattanayek	1/19/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/19/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/19/2009
Chromium	υ	μg/L	2.0	5	M Pattanayek	1/19/2009
Cobalt	U	μg/L	0.04	1	M Pattanayek	1/19/2009
Lead	U	μg/L	0.10	1	M Pattanayek	1/19/2009
Manganese	1.9	μg/L	0.42	1	M Pattanayek	1/19/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/19/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	1/19/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/19/2009

TEST: Mercury	ME	THOD: EPA 24	5.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.13	0.2	A Wilson	1/19/2009	

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit MQL - Method Quantitation Limit** 

N00004019004

**Project Name:** 

Sample Description: F

**ROCKWOOD WTP** 

Sampler Project Name: RAW

**Project Site No.:** 

**Station No.:** 

Date/Time Collected:

01/18/2009 08:35

Sampler's Name: County:

BRANDY LONG ROANE - 73

Sample Matrix:

ROANE - 7
Water

EFO: Sampling Agency:

Knoxville TDEC-DWS

**Billing Code:** 

Send Report To: Agency Invoiced:

TDEC-DWS
TDEC-DWS

**Priority Date:** 

Date/Time Received:

01/18/2009 1

10:30

Received By:

P Singh

TEST: Digestion Metals	MET	HOD: EPA 20	DD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	01/19/2009				A Wilson	1/19/2009	

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen:** 

**CFS** 

Conductivity:

Temperature:

pH:

Other:

Flow:

TEST: ICP-MS	ME <sup>-</sup>	THOD: EPA 20				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	1/19/2009
Barium	28	μg/L	2.5	5	M Pattanayek	1/19/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	1/19/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	1/19/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	1/19/2009
Cobalt	0.04J	μg/L	0.04	1	M Pattanayek	1/19/2009
Lead	U	μg/L	0.10	1	M Pattanayek	1/19/2009
Manganese	9.7	μg/L	0.42	1	M Pattanayek	1/19/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	1/19/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	1/19/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	1/19/2009

TEST: Mercury	ME	ΓHOD: EPA 24				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	1/19/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit**